

REMARKS

Applicants respectfully request the Examiner to reconsider the present application in view of the foregoing amendments to the claims and specification.

Status of the Claims

In the present Reply, claim 7 has been amended. In addition, claims 15-16 have been added. Also, claims 1-5, 12 and 14 were previously canceled without prejudice or disclaimer of the subject matter contained therein. This makes claims 6-11, 13 and 15-16 as pending in the present application.

No new matter has been added by way of the amendment to claim 7, wherein support for this amendment can be found in the present specification at least at page 1, lines 12-20 and 24-28; page 46, lines 15-19; and page 13, line 7. Also, no new matter has been added with the addition of claims 15-16, wherein the specification at least at page 18, lines 19-29 supports the scope of these claims.

Further, no new matter has been added with the changes to the present specification wherein these changes are merely editorial in nature (e.g., correction of typographical errors).

Based upon the above considerations, entry of the present amendment is respectfully requested.

In view of the following remarks, Applicants respectfully request that the Examiner withdraw the only rejection and allow the currently pending claims.

Substance of the Interview

Applicants thank the Examiner for her time, helpfulness and courtesies extended to Applicants' representative and the Applicant during the Interview of March 30, 2006. The assistance of the Examiner in advancing prosecution of the present application is greatly appreciated. In compliance with M.P.E.P. § 713.04, Applicants submit the following remarks.

The Interview Summary form amply summarizes the discussions at the Interview. In particular, Applicants submitted graphs (also enclosed herein) that explained how the present invention is patentably distinct over the cited WO 00/53140 A1 reference. A comparative showing of the present invention versus Comparative Examples A-C was included as a part of the discussion. Applicants argued that one of ordinary skill in the art could not achieve the claimed invention in view of the WO 00/53140 A1 disclosure. The more detailed explanation of these graphs is given below.

Issues under 35 U.S.C. § 103(a)

Claims 6-11 and 13 stand been rejected under 35 U.S.C. § 103(a) as being unpatentable over Okuda *et al.* '140 (WO 00/53140 A1) (see paragraph 2 at pages 2-4 of the outstanding Office Action). Applicants respectfully traverse, and reconsideration and withdrawal of this rejection are respectfully requested.

Summary of Applicants' Position

Overall, Applicants do not concede that a *prima facie* case of obviousness has been established since, e.g., there is no disclosure of all claimed features (one of the requirements for a

prima facie case of obviousness). See *In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991). Also, Applicants respectfully submit that the present invention is patentably distinct from the cited Okuda '140 based on any or all of the following:

- Okuda '140 fails to disclose the instantly claimed stand gather(s) that has a fixing extension ratio of 100-300%;
- Okuda '140 fails to disclose the instantly claimed stand gather(s) that has the rate of increase for the tensile load being 1.0 (gf/%) or lower (going from an extension ratio of 20% up to the effective extension ratio);
- Okuda '140 fails to disclose the instantly claimed stand gather(s) with the combined feature of the mentioned fixing extension ratio (100-300%) plus the rate of increase of tensile load (1.0 (gf/%) or lower);
- Okuda '140 fails to disclose the instantly claimed W11/W12 ratio, which is from 0.67 to 0.81; and
- Okuda '140 fails to disclose the instantly claimed distance W13 being smaller than width W14.

The Features and Advantages of the Present Invention

Unlike conventional fitted disposable diapers, the present invention unexpectedly achieves excellent absorbing performance and leakproofness as well as improved ease in placing the presently claimed diaper on the user whether the baby or infant is standing or crawling. In addition, the present invention has been completed based on a new idea of providing an

improved flat type disposable diaper that is easy to put on a wearer in a standing position. As recited in pending claim 7, the present invention claims several structural features that contribute to the unexpected advantages of the present invention. Applicants label such features of the present invention as A-G below.

A: The instantly claimed disposable diaper comprises a liquid permeable topsheet, a liquid impermeable backsheet, a liquid retentive absorbent member interposed between the topsheet and the backsheet, wherein a fastening tape is provided on each side edge of one of a pair of longitudinal end sections thereof.

B: The disposable diaper is for babies and infants who can stand up or crawl.

C: The disposable diaper has a pair of standing gathers and a pair of leg gathers each being formed by fixing respective elastic members in each of a pair of longitudinal side portions thereof.

D: A smallest width of the crotch section is 100 to 240 mm.

E: A ratio of a distance W11 between a pair of fixed ends of the pair of standing gathers measured at the smallest width of a crotch section to a distance W12 between each elastic member that is arranged most outward in each of the respective leg gathers, $W11/W12$, is from 0.67 to 0.81.

F: A distance W13 between each of the fixed ends of the pair of standing gathers and each of the elastic members that are arranged most outward in the pair of leg gathers is smaller than a width W14 of the standing gathers.

G: The standing gathers (cuffs) are formed by fixing an elastic member having a fixing extension ratio of 100% or higher, and the standing gathers on each longitudinal

side portion has tensile characteristics, which as measured in a state of the gathers not being fixed to the diaper, wherein the tensile load required to extend the standing gathers to an effective extension ratio, which is 30% lower than a fixing extension ratio is from 20 to 120 gf, and the rate of increase of the tensile load required to extend from an extension ratio of 20% to the effective extension ratio being 1.0 (gf/%) or lower.

With regard to the features within the standing gathers or cuffs of feature G above, Applicants respectfully refer the Examiner to Figure 2 of the present specification (for the two-dimensional depiction) and Figure 8 (for the three-dimensional depiction).

Due to the present invention having features A to G above, the present invention achieves the unexpected advantages of a fitted disposable diaper that is easy to place onto a wearer (e.g., baby or infant), whether in a lying or standing position, and that is excellent in absorbency and is retains excellent leak-proof properties. With these structures and achieved unexpected results, Applicants respectfully submit that the present invention is patentably distinct from the cited Okuda '140 reference for several reasons.

Distinctions over the Cited Modification of the Okuda '140 Reference

As pointed out by the Examiner in the Office Action, the cited Okuda '140 reference discloses a diaper of flat type having absorbent core 4 in between liquid permeable top sheet 2 and anti-leakage/back sheet 3 with free end region 64 (see the Office Action at the bottom of page 2). Further, the Examiner asserts Okuda '140 disclose that its diaper has fastening tape 11 on each side of the waistband, the stress of the upstanding guard elastic member 64 being within

certain ranges (with reference to page 4, lines 9-10, page 5, lines 13-15, page 14, lines 10-12 and Fig. 1 of Okuda '140) (see the sentence bridging pages 2-3 of the Office Action). In other words, the Examiner states that the Okuda '140 reference describes a disposable diaper having claimed features A and C mentioned above. Thus, in the outstanding Office Action, the Examiner states that Okuda '140 discloses several features of the present invention. However, any missing disclosure in Okuda '140 is accounted for by stating the instantly claimed features are result effective variables involving optimization and routine skill in the art (e.g., standing gathers width W14). Applicants respectfully traverse.

First, the cited Okuda '140 reference fails to disclose or suggest at least the instantly claimed features of B, D, E, F and G of the present invention discussed above. Further, besides the lack of disclosure or suggestion in Okuda '140 of the presently claimed feature G of the present invention (the standing gathers with certain tensile properties), Okuda '140 also fails to disclose the combination of element G with elements of E and F. Feature G of the present invention is explained in more detail below (Section (A) below).

Second, such features as achieved by the present invention are not result effective variables as asserted in the Office Action. For instance, Applicants note that the claimed element G when combined with features E and F in the present invention exhibits the advantageous properties of the present invention (e.g., absorbency; ease of placing diaper on wearer). Applicants respectfully submit there exists several reasons as to why Okuda '140, besides failing to disclose feature G and its combination with features E and F, fails to disclose or suggest the advantageous effects as exhibited from this combination.

(A) Feature G of the Present Invention

Applicants add the following explanation of feature G (and also in combination with E and F) that contributes to the unexpected properties of the present invention.

A conventional pull-on type diaper is known as a diaper that is easy to put on a wearer even while standing. The present invention has been completed based on a new idea of providing an improved flat type disposable diaper that is easy to put on a wearer in a standing position. The present invention is different from conventional pull-on type diapers in that a flat type diaper has been considered to be a diaper for putting on a wearer in a lying position.

Applicants also note that the state of the art is such that there is no motivation for modifying or arranging a flat type diaper so as to put on a wearer that is in a standing position. This may be due to the effects on absorption and leakage properties of the diaper (see also page 1, lines 12-23 of the present specification. Thus, the inventors are the first to attain the idea for providing a diaper of a flat type for (easily) diapering an infant or baby that is in a standing or crawling position. Based on this idea, the inventors earnestly studied to provide a useful diaper that is not only easy to place onto a wearer (e.g., infant) that is in a standing position, but also satisfies the basic functions as a diaper (e.g., absorption; preventing leakage). As a result, the present inventors have discovered that the combination of the claimed feature G of the standing gathers in combination with elements E (related to distances W11 and W12) and F (related to W13 and W14) leads to unexpected advantages of the present invention.

The present invention has succeeded in solving the problems in the art by inventing the instantly claimed element G, *i.e.*, by providing standing gathers which extend with smaller force (the increase rate of tensile load required for extending is from an extension ratio of 20% up to

the effective extension ratio 1.0 (gf/%) or lower) than that of the standing gathers of the conventional diapers at a higher extension ratio (an extension ratio of 100% or higher) than that of the standing gathers of the conventional diapers. That is, when putting on a diaper while the wearer is in a standing position, the standing gathers of the present invention have a force to appropriately contract even under the condition that the diaper curves into a U-shape. In this regard, Applicants herein enclose "*Material 1*".

Material 1 depicts a *Graph 1* as well as a *Referential Figure 1*. The shown *Graph 1* of *Material 1* shows the changes of the tensile load of the standing gathers which are stretched from their naturally contracted state (load 0) after taken out from a diaper to the length nearly at the time when fixed to a diaper which is stretched substantially flat as shown in Figure 1 of the present application. The range referred to as "when diapering a wearer in a standing position" shows the process until the diaper has been put on a wearer, *i.e.*, appropriate range from inserting the diaper into the space under the crotch of the wearer to pulling up the diaper to a fitted position of the wearer (*e.g.*, the initial opening of the diaper when about to placed onto the infant or baby). The shown *Referential Figure 1* of *Material 1* refers to the forces of a conventional diaper (which leads to the depicted gap and thus leakage).

The claim element G is the particularly important element for using the flat type diaper of the present invention as a diaper that is easy to put on in a standing/crawling position. That is, when putting a flat type diaper on a wearer that is in a standing or crawling position, the legs do not spread apart unlike the case of putting on a diaper when the wearer is in the lying position. Therefore, the width of the crotch portion of a wearer is relatively and extremely narrow when

putting on the diaper in a standing position compared with the case of a wearer that is lying down.

In addition, in order to put on a diaper sufficiently in a standing position, it is necessary to pull up the diaper which has been inserted into the narrow space under the crotch of the wearer into a fitted position, while keeping the diaper curved into a U-shape in the longitudinal direction to some extent. However, for conventional diapers in this situation, a diaper has standing gathers, and such standing gathers contact the wearer's thighs and thus will disturb the diapering process. Thus, the diaper fails to be applied to the properly fitted position on the infant or baby. Additionally, the standing gathers may fall or bend when contacting or touching the skin when putting on the diaper in a standing position. It follows that a gap can be formed between the gathers and the skin, through which body waste will leak (see, e.g., page 6, lines 5-31 of the present specification for the drawbacks of conventional diapers).

The instantly claimed cuffs solves such problems in the art with feature G. Regarding how feature G works, Applicants respectfully refer the Examiner to the enclosed *Material 1* and the above explanation.

(B) Feature G and the Unexpected Results/Properties of the Present Invention

Though the Examiner takes the position that it is a matter of design for a person skilled in the art to appropriately decide the extension ratio of the standing gathers, tensile load and rate of increase of the tensile load, Applicants respectfully traverse. This is because one of ordinary skill in the art would either fix the elastic members at a higher extension ratio in order to enhance the rising capability of the standing gathers, or increase the thickness of the elastic members to

enhance the rising capability of the standing gathers thereby only improving the tensile stress. However, the present invention is structurally different from the Okuda '140 embodiment and leads to different unexpected, advantageous properties. Related to *Material 1* and the instantly claimed feature G of the present invention, Applicants respectfully submit that the present invention is patentably distinct from Okuda '140 based on feature G alone.

Applicants first note that the present invention does not use a higher extension ratio like conventional diapers, wherein the standing gathers of conventional diapers of flat type are formed by fixing an elastic member at a higher extension ratio. In other words, in the case of using conventional standing gathers, (*i.e.*, standing gathers which do not meet the requirement of the instantly claimed rate of increase of the tensile load required to extend from an extension ratio of 20% to the effective extension ratio being 1.0 (gf/%) or lower) if the extension ratio is made higher for enhancing the rising capability of the standing gathers, the diaper contracts excessively (*e.g.*, curls up in the longitudinal direction when diapering). Regarding conventional diapers increasing the extension ratio for enhancing the rising capability of the standing gathers, Applicants respectfully refer the Examiner to the dotted line shown in *Graph 1* of the attached *Material 1*.

Further, in such a conventional diaper, a larger force is required to widely open the contracted diaper when placing onto the baby or infant, and the diaper is difficult to open wide due to the excessive resistance when stretching the stand gathers which tend to curl up. This is because the higher extension ratio as used in the conventional diaper. In *Graph 1*, this can be seen by reviewing the slope of the curved line for "conventional diaper 1". This slope of the conventional diaper shows the large increase in tensile load (gf) needed to initially open the

diaper. It follows that although the rising capability is enhanced in the conventional diaper, the diapering a wearer in a standing position deteriorates. For instance, as stated in Applicants' specification at page 6, lines 10-13, there will be a sacrifice in absorption and leakage properties of the diaper.

Furthermore, if only conventional standing gathers are designed to have higher extension ratio, the restoring force back to its initial state of the cuffs/standing gathers will deteriorate. In other words, when placing the diaper onto the wearer, the restoring force cannot be retained since the cuffs sag since they are being pressed between the wearer's legs (which works to the direction for separating the diaper from the crotch of the wearer), wherein the diaper tends to easily slide down when the diaper is applied to the crotch of the wearer, pulled up and fastened with a fastening tape, or even during wear. In fact, should the diaper begun to slide down when one manages to fasten the diaper, this results in poor fit and impaired leak-proof properties. In this regard, Applicants respectfully refer the Examiner to *Referential Figure 1* in the attached *Material 1* that depicts the gap and leakage problems in the conventional diaper.

In contrast, the present invention not only fixes the standing gathers at a high extension ratio in order to enhance the rising capability of the standing gathers, but the present invention also employs the increase rate of tensile load (required for extending from an extension ratio of 20% up to the effective extension ratio is 1.0 (gf/%) or lower). The combination of the high extension ratio and the increase rate of tensile load enhances the rising capability of the standing gathers and at the same time lowers the rising capability of the standing gathers (Applicants note this was also pointed out during the recent Interview with the Patent Examiner). As a result, the

present invention has succeeded in solving the diapering problem due to strong tendency to curl up by suppressing the behavior to contract or retarding the contraction.

In this regard, Applicants respectfully refer the Examiner to *Graph 1*, wherein the slope of the “Diaper of the present invention 2” indicates that less tensile load is needed to open and fasten the diaper onto the standing baby or infant. *Graph 2* also shows the less tensile load needed versus the conventional diaper 1.

In addition, by reducing the force necessary to widely open the contracted gathers and the rate of the increase of tensile load around the region for diapering, excessive resistance against stretching the standing gather can be suppressed. Therefore, the standing gathers of the present invention rise up while placing the diaper onto the baby or infant, and those free ends naturally move toward the appropriate position under the narrow crotch of the wearer. In addition, the standing gathers are prevented from falling or bending when diapering the baby or infant that is in a standing position.

In view of the above, Applicants respectfully submit that it is not a matter of design of a skilled person in the art or a result effective variable to combine the structure that is generally considered to enhance the rising capability of the standing gathers and the structure that is generally considered to lower the rising capability of the standing gathers.

(C) The present invention: feature G with other claimed features

As discussed above, the claim element G is particularly important in the present invention. It is also important to combine the claim element G with the claim elements E and F in the present invention. The disposable diaper of the present invention has, in addition to a pair

of standing gathers, a pair of leg gathers as defined in element C, thereby forming a pocket which receives the body waste flooded from across a pair of standing gathers. The present invention aims not only to improve ease of diapering a wearer in a standing or crawling position as explained above, but also to secure excellent leakproofness (prevention of leakage).

Also in the present invention, if distance W13 between the fixed end of the standing gather and the elastic member that is arranged most outward in the leg gather is smaller than a width of the standing gather, the pocket may become insufficient, which cannot improve leakproofness. That is, it is important for the present invention to combine the elements F and E with the element G to give the ease of diapering a wearer in a standing or crawling position.

Also in the present invention, with the smallest width in the crotch section of the diaper as narrow as from 100 to 240 mm, sufficient absorbency between the pair of leg gathers can be secured, and a pocket having a space sufficient for receiving discharged waste material flooded from across the standing gathers can be formed at the outside of the gather. Thus, the aforementioned advantageous effects of the present invention, *i.e.*, ease of diapering a wearer in a standing position and excellent leakproofness, can be exhibited with these claimed features.

Even assuming that the diaper of the Okuda '140 reference has its own element F ($W13 < W14$), as pointed out by the Examiner in the outstanding Office Action (page 3, lines 9-10), excellent leakproofness cannot be obtained without the instantly element E (the ratio of $W1/W2 = 0.67$ to 0.81). This is demonstrated in the results of Leakproof and Properties Space Retention for Soft Stools about Comparative Example 2 (defining $W3 < W4$) in Table 4 (page 42) of the present specification.

In summary, there is no disclosure or suggestion in the Okuda '140 reference with respect to the element G and advantageous effects of the present invention (e.g., ease of diapering a wearer in a standing or crawling position). In addition, no disclosure or suggestion can be seen in Okuda '140 with respect to combining the elements E and F with the element G.

Applicants also traverse the conclusions of certain features of the present invention being "result effective variables" (e.g., tensile load) or a result of "discovering an optimum value" thereof since no technical or scientific evidence has been provided to establish such. Further, features such as crotch portion width is a claimed feature not accounted for by the Okuda '140 reference, wherein this is not a result effective variable that is dependent on article size and/or type of material used in standing gathers. Instead, the explanation above and the experimental data in Applicants' specification and the attachments herein show that this is not the case.

Thus, Applicants respectfully submit that this rejection has been overcome since not all requirements for a *prima facie* case of obviousness have been satisfied. Specifically, U.S. case law squarely holds that a proper obviousness inquiry requires consideration of three factors: (1) the prior art reference (or references when combined) must teach or suggest all the claim limitations; (2) whether or not the prior art would have taught, motivated, or suggested to those of ordinary skill in the art that they should make the claimed invention (or practice the invention in case of a claimed method or process); and (3) whether the prior art establishes that in making the claimed invention (or practicing the invention in case of a claimed method or process), there would have been a reasonable expectation of success. *See In re Vaeck*, 947 F.2d 488, 493, 20 USPQ2d 1438, 1442 (Fed. Cir. 1991); *see also In re Kotzab*, 55 USPQ2d 1313, 1316-17 (Fed. Cir. 2000).

Here, not even the initial requirement of disclosure of all claimed features has been satisfied. Applicants add that the requisite motivation is lacking when, e.g., Okuda '140 does not suggest using a flat type diaper with feature G as achieved by the present invention. In this regard, Applicants respectfully submit that it is not *prima facie* obvious to modify a reference unless the references suggest an advantage to be gained from the modification. *See In re Sernaker*, 217 USPQ 1, 6 (Fed. Cir. 1983). Thus, reconsideration and withdrawal of this rejection are respectfully requested.

Unexpected Results of the Present Invention

Applicants respectfully submit that the present invention has achieved unexpected results, whereby such results rebut any asserted *prima facie* case of obviousness (whether based on Okuda '140 or any other reference or modifications/combinations thereof). *See In re Corkill*, 711 F.2d 1496, 226 USPQ 1005 (Fed. Cir. 1985); *see also In re Papesch*, 315 F.2d 381, 137 USP 43 (CCPA 1963); *In re Wiechert*, 370 F.2d 927, 152 USPQ 247 (CCPA 1967). As stated in M.P.E.P. § 2144.09 (see section entitled "*Prima Facie* Case Rebuttable By Evidence of Superior or Unexpected Results"), any rejection under 35 U.S.C. § 103(a) may be rebutted by a sufficient showing of unexpected results for the present invention.

In connection with the unexpected, advantageous effects of the present invention, Applicants herein enclose the attached "*Material 3*" and a "*Comparative Data*". The attached *Material 3* shows the experimental results of the ease of diapering and leakproof properties in case of using diapers of Example 1 described in the present specification and diapers of Comparative Example 1 described in the present specification, as shown in *Material 3* also

attached hereto. As can be seen, in connection with ease of diapering, 93% of the monitors answered that the diaper of Example 1 was excellent, whereas none of them answered that the diaper of Comparative Example 1 was excellent. Thus, the results show that the diaper of the present invention is extremely excellent compared with the diaper which does not have the element G in connection with ease of diapering. Applicants also note that superiority can establish unexpected results. *See In re Chupp*, 816 F.2d 643, 646, 2 USPQ2d 1437, 1439 (Fed. Cir. 1987).

In addition, in connection with leakproof properties, 33% of the monitors answered that the diaper of Example 1 was excellent, whereas only 7% of them answered that the diaper of Comparative Example 1 was excellent. Thus, the results show that the diaper of the present invention is excellent in connection with not only ease of diapering but also leakproof properties.

Further, as can be seen from the attached *Comparative Data*, the present invention has achieved unexpected results due feature G. In this regard, Applicants respectfully refer the Examiner to the table showing the claimed fixing extension ratio and tensile load properties of the cuffs. Comparative Example A represents Okuda '140. The comparative showing need not compare the claimed invention with all of the cited prior art, but only with the closest prior art. *See* M.P.E.P. §§ 716.02(b) and 716.02(e); *see also In re Fenn et al.*, 208 USPQ 470 (CCPA 1981); *In re Holladay*, 199 USPQ 516 (CCPA 1978); *see also In re Merchant*, 197 USPQ 785 (CCPA 1978) (citing *In re Malagari*, 499 F.2d 1297, 1303, 182 USPQ 549, 553 (CCPA 1974). However, Applicants also refer the Examiner to Comparative Example B, which is even closer than the Okuda '140/Comparative Example A embodiment. The *Comparative Data* depicts how the present invention does not curl up, which is what happens with the Comparative Examples

A-C. Thus, the present unexpected results rebut any rejection stated under § 103(a). Reconsideration and withdrawal of this rejection are respectfully requested.

Information Disclosure Statement

Applicants filed an Information Disclosure Statement on August 17, 2005. However, Applicants have not yet received a copy of the PTO/SB/08a/b form having the Examiner's initials next to each cited reference. Applicants respectfully request such a copy from the Examiner.

Conclusion

A full and complete response has been made to all issues as cited in the Office Action. Applicants have taken substantial steps in efforts to advance prosecution of the present application. Thus, Applicants respectfully request that a timely Notice of Allowance issue for the present case.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Eugene T. Perez (Reg. No. 48,501) at the telephone number of the undersigned below.

Application No. 10/626,547

Docket No.: 0445-0340P

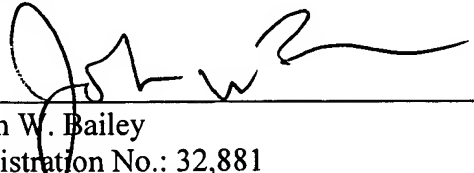
Art Unit 3761

Reply to Office Action of November 8, 2005

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: April 6, 2006

Respectfully submitted,

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Attachments:

Material 1 (containing Graph 1, Referential Figure 1) (1 page)

Material 2 (containing Graph 2, Referential Figure 2) (1 page)

Material 3 (1 page)

Comparative Data (1 page)